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A Common but Hitherto Undescribed Species of *Orchomenella* (Crustacea Amphipoda: Family Lysianassidae) from the Ross Sea

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Abstract

A common Lysianassid Amphipod of the Genus *Orchomenella* which has been frequently recorded from the Antarctic but confused with such species as *Orchomenella chilensis, Orchomenella rossi* and *Orchomenella proxima* is described as a new species.

Introduction

Late in 1961, I received a collection of amphipods made by Dr John S. Pearse, of the Department of Biological Sciences, Stanford University, under the auspices of the U.S. Antarctic Programme of the National Science Foundation. Amongst these were several hundred Lysianassids which had been collected at White Island in the Ross Sea during an examination of the fauna living under the Ross Ice Shelf (Littlepage & Pearse, 1962; Pearse, 1963). At that time, I provisionally identified two very similar species, *Orchomenella rossi* (Walker, 1903; Hurley, 1965b), which formed at most 10% of the collection, and another species of *Orchomenella* which made up the bulk of the collection. These latter specimens were not easily identified with any of the known Antarctic species. This was surprising in view of the considerable number already described, especially since the species has a peculiarly distinctive gnathopod 1 sideplate, but its resemblance to *O. rossi* in this and several other features is no doubt partly responsible for its non-recognition by earlier workers.

Apart from some obvious differences in pereopods 3–5 (which are not as obvious in drawings as they are when the species are laid side by side) and in the 3rd uropods, the second species could easily be confused with *O. rossi* as shown in Walker's original drawings. Previous misidentification as *O. chilensis* is mostly due to the somewhat unjustified reputation of *chilensis* as "the common Antarctic Lysianassid" (Hurley, 1965a). However, there were records of *O. proxima* (Chevreux) from the Antarctic (Chevreux, 1906; Schellenberg, 1926) which hinted that the specimens in question might be identical with those from White Island.

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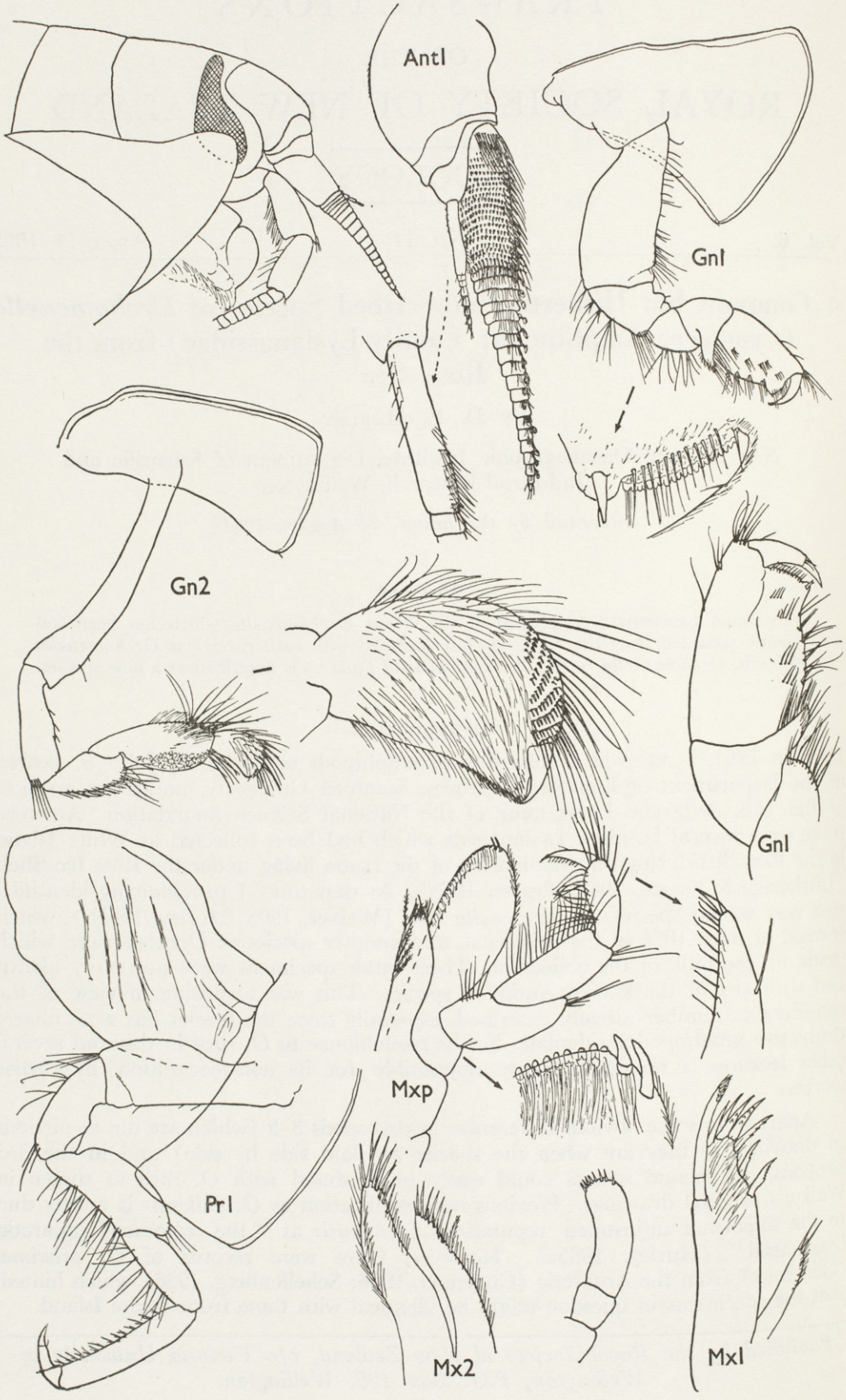


Text-fig. 1.—*Orchomenella plebs* n. sp.

During a visit to the British Museum (Nat. Hist.) I was able to examine and redraw Walker's type of *O. rossi* Hurley, 1965b) and to borrow from Monaco the type of *O. proxima* and, from Paris, Chevreux's Antarctic specimens attributed to *O. proxima.* As a result, I am forced to describe the White Island material as a new species.

Orchomenella plebs n. sp.

Not *Orchomenopsis proxima* Chevreux. Chevreux, 1906: 13

Not *Orchomenopsis chilensis* forma *proxima.* Schellenberg, 1926: 290–291.

Not *Orchomenella proxima* (Chevreux), Littlepage and Pearse, 1962: 680. Pearse, 1963: 43.

DIAGNOSIS

Quite a large species (up to about 20mm); integument moderately thick, body in spirit white with reddish oilspots and gonads frequently showing through in middle of back. Eyelobes wide and rounded, reaching almost to the end of the first segment of the peduncle of antenna 1. Eyes black, kidney-shaped, almost meeting in midline. Urosome segment 4 notched anteriorly, posteriorly has small but distinct rounded keel.

Epistome long, straight, separated by distinct notch from rounded upper lip, not projecting beyond latter. Gnathopod 1 sideplate characteristically narrow proximally, distally as wide as long, making it adze-shaped, rounded anterodistal angle produced alongside head so it partly obscures bottom of eye and eyelobe; seg. 5, short free posterior margin produced in small rounded spinose and setose lobe cupping base of seg. 6; seg. 6 posterior margin is proximally convex, distally concave, widest proximally; palm transverse, marked off posteriorly by customary two spines and by small rounded lobe. Gnathopod 2, seg. 6 short, palm transverse, very small dactylos almost obscured by spines and setae.

Maxilliped outer plate has 2 slender curved spines distally, row of about 20 or so nodulate teeth down inner margin. Pereopod 1, segs. 3–5 have numerous long spine-setae posteriorly, seg. 6 has about 14 groups of single and paired short spines. Pereopod 3 sideplate slightly wider than deep, almost half as long again as basos, somewhat shorter than seg. 2–4 combined; basos posteriorly expanded in rounded plate so depth barely $\frac{3}{4}$ width.

Uropod 2 not incised. Uropod 3, inner ramus shorter than outer. Telson cleft about $\frac{3}{4}$, 1 or 2 spines at end of each narrow lobe, 3 or 4 single spines along margins. Epimeral plate 3 subrectangular but angles broadly rounded.

Antenna 1, accessory flagellum of 8 segments, first long and cylindrical, slender, reaching end of seg. 1 of primary, longer than remaining 7 segments; inner margin has rows of fine setae distally forming somewhat of a brush, a few single setae proximally on outer margin; flagellum reaches to about end of seg. 7 of primary; seg. 1 of primary about $\frac{2}{3}$ length rest of flagellum, has setal brush; all segments calceoliferous. Antenna 2 much longer, of about 44 segments, mostly calceoliferous.

FURTHER DETAILS

Antenna 1: Reaches just past end of peduncle of Antenna 2. *Antenna 2*: May reach back to pereopod 3. Seg. 3 of peduncle not half length seg. 4, seg. 5 slightly shorter than 4; superior margin of 4 and 5 with short fur of short bristles; inferior margin has long spine-setae.

Maxilla 1: Palp second segment has rounded end, about 8 short teeth.

Maxilla 2: Outer plate bristled along both margins, strong spine-setae at end. *Maxilliped*: Inner plate, inner margin has usual long plumose setae; end margin strongly bristled so teeth if present cannot be easily seen, a long spine on outer angle. Palp, seg. 4 has strong end nail, 1 long seta on outer margin, 11–12 fine setae on inner. *Mandible*: Palp, seg. 3 shorter than 2; seg. 2 has strong row of spine-setae distally; seg. 3 surface and outer margin finely bristled, distal ⅔ of inner margin has row of medium to long spine-setae. Palp slightly behind molar.

Gnathopod 1: Basos ¾ sideplate depth, anterior margin setose; seg. 3 almost half as long, posteriorly setose; seg. 4 is ⅓ basos length, posteriorly setose; seg. 5 anteriorly as long as 4 is posteriorly; seg. 6 is ⅔ basos length, anterior margin has a few spine-setae distally, posterior margin and surface with 4–5 short rows of spine-setae; palm has numerous minute rounded teeth.

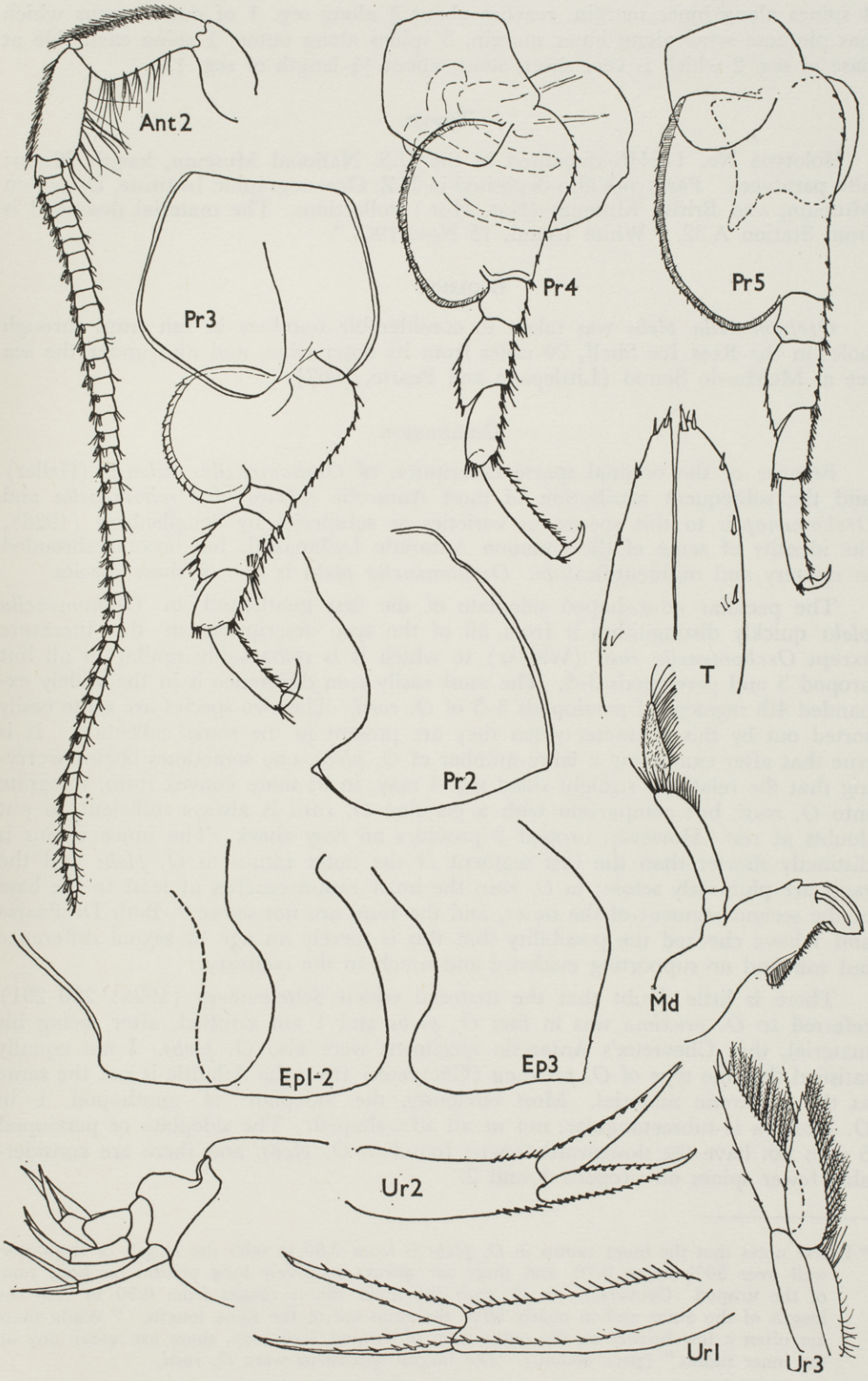
Gnathopod 2: Sideplate subrectangular, widening slightly distally, width half length; basos slightly longer, very slender, seg. 3 half basos length, a few setae posterodistally; seg. 4 is ⅔ length seg. 3, posterior margin bristled, spine-setose distally; seg. 5 as long as 3, anterior margin strongly bristled, anterodistally strongly spine-setose, posterior surface hexagonally scaled; seg. 6 almost ⅖ length seg. 5, anterior margin strongly convex.

Pereopod 1: Sideplate subrectangular, width half length; basos ¾ as long; seg. 3 nearly ⅔ basos length; seg. 4 almost as long, wider; seg. 5 slightly shorter still, considerably narrower than 4; seg. 6 almost as long as basos. *Pereopod 2:* Sideplate posterior lobe rounded but has transparent fringe which is usually produced into small lobe on upper point of hind margin. *Pereopod 3:* Basos anterior margin has about 14 short single spines; posterior margin has distinct and slightly serrated fringe with minute seta to each serration; seg. 3 is ¼ basos length, anterior margin spined; seg. 4 is ⅓ basos length, anterior margin straight, strongly spined, as wide as long, posterior margin slightly convex, has about 7 spines; seg. 5 as long, narrower, anterior margin strongly spined, posterior has spines only on distal angle; seg. 6 only slightly shorter than 4 and 5 combined, 7–8 pairs of short spines on anterior margin, dactylos half as long. *Pereopod 4:* Sideplate subsquare, tending to pentagonal, about ¾ basos length. Basos ovate, almost as wide as deep, narrowing a little distally, anterior margin proximally convex, distally concave, about 10–12 single short spines; posterior margin as in Pr. 3. Basos as long as seg. 3–5 combined; seg. 4 has posterior margin only slightly convex, with about 6 single spines; otherwise like Pr. 3.

Pereopod 5: Sideplate ovate, slightly wider than deep; only half basos depth. Basos tending to subrectangular, width about ¾ depth; anterior margin, distal half almost straight, has 9–10 single spines; posterior not greatly convex except distally, otherwise margin as in Pr. 3. Basos considerably longer than segs. 3–5, posterior margin of 4 slightly convex, has about 6 spines. Otherwise like Pr. 3.

Epimeral Plates: First has anterior margin concave, so anterodistal angle almost hooked; posterior margin convex, angles rounded. Second subrectangular, broadly rounded. Third subrectangular, anterodistal angle rounded, posterior right-angled, posterior margin distally finely crenulated.

Uropod 1: Rami subequal, shorter than peduncle, which has 10 + 20 spines dorsally; rami have 6 + 1 and 3 + 11 spines dorsally, integral end spines. *Uropod 2*: Rami subequal, slightly shorter than peduncle; peduncle margins have 6 + 6 spines distally on dorsal margin; rami have 10 + 0 and 8 + 15 spines dorsally, integral end spines. *Uropod 3*: Peduncle slightly shorter than inner ramus, has several setae dorsally, inner ramus has long plumose setae along outer margin;



TEXT-FIG. 2.—*Orchomenella plebs* n. sp.

4 spines along inner margin, reaches about ¾ along seg. 1 of outer ramus which has plumose setae along inner margin, 5 spines along outer; 1 spine each side at base of seg. 2 which is very short, stout, about ⅙ length of seg. 1.

TYPES

Holotype No. 112416 deposited in the U.S. National Museum, length 20mm; also paratypes. Paratypes also deposited in N.Z. Oceanographic Institute, Dominion Museum, and British Museum (Nat. Hist.) collections. The material described is from Station A.32, "White Island, 15 Nov. 1961."

ECOLOGY

Orchomenella plebs was taken in considerable numbers in fish traps through holes in the Ross Ice Shelf, 20 miles from its outer edge, and also under the sea ice at McMurdo Sound (Littlepage and Pearse, 1962).

DISCUSSION

Because of the original sparse description of *Orchomenella chilensis* (Heller) and the subsequent attribution of most Antarctic species of *Orchomenella* and *Orchomenopsis* to this species as varieties or subspecies by Schellenberg (1926), the identity of some of the common Antarctic Lysianassids has become shrouded in mystery and misidentification. *Orchomenella plebs* is one of these species.

The peculiar adze-shaped sideplate of the first gnathopod in *Orchomenella plebs* quickly distinguishes it from all of the type descriptions in the literature except *Orchomenella rossi* (Walker) to which it is remarkably similar in all but uropod 3 and pereiopods 3–5. The most easily seen difference is in the widely expanded 4th segment of pereiopods 3–5 of *O. rossi.* The two species are quite easily sorted out by this character when they are present in the same collection. It is true that after examining a large number of *O. plebs,* one sometimes begins worrying that the relatively straight sided seg. 4 may, in its more convex form, integrate into *O. rossi,* but comparison with a genuine *O. rossi* is always sufficient to put doubts at rest. However, uropod 3 provides an easy check. The inner ramus is distinctly shorter than the first segment of the outer ramus in *O. plebs* and the rami are plumosely setose; in *O. rossi* the inner ramus reaches at least to the base of the second segment of the outer, and the rami are not setose.* Both Dr Pearse and I have checked the possibility that this is merely an age or sexual difference but can find no supporting evidence and much to the contrary.

There is little doubt that the material which Schellenberg (1926: 290–291) referred to *O. proxima* was in fact *O. plebs* and I am satisfied, after seeing his material, that Chevreux's Antarctic specimens were also *O. plebs.* I am equally satisfied that the type of *O. proxima* (Chevreux) from the Atlantic is not the same as the Antarctic material. Most obviously, the sideplate of gnathopod 1 in *O. proxima* is subrectangular, not at all adze-shaped. The sideplate of pereiopod 5 does not have the downward tongue found in *O. plebs,* and there are considerably fewer spines on uropods 1 and 2.

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* Pearse notes that the inner ramus in *O. plebs* is from 0.65 to 0.85 the length of the outer, well over 50% being 0.70, and there are always relatively long bristles on both rami of the uropod. Conversely, in *O. rossi* the inner ramus ranges from 0.90 to 1.20 the length of the outer and in nearly 50% the rami are of the same length. "While there are often a few bristles on the outer rami of uropod 3 of *rossi,* there are *never* any on the inner ramus" (pers. comm.). The largest specimens were *O. rossi.*

There is therefore no alternative but to describe the White Island material as a new species, since there is neither an available name nor an adequate description in the literature.

ACKNOWLEDGMENTS

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